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TO:  
Examiner Patrick D. Lewis

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Howard A. MacCord, Jr.

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RE:  
Response to Office Action mailed September 16, 2003 for Serial Number: 09/674,242; Filed on October 27, 2000; Confirmation Number: 4952; For: PROCESS FOR THE MANUFACTURE OF L-ARABINOSE BY ACIDI HYDROLYSIS; Our File No. 4629-007

NOTES/COMMENTS:

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: Hizukuri

Serial No.: 09/674,242

Filed: October 27, 2000

Confirmation No.: 4952

For: **PROCESS FOR THE MANUFACTURE OF L-ARABINOSE BY ACIDIC  
HYDROLYSIS**

Examiner: Patrick T. Lewis

Art Unit: 1623

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

**RESPONSE TO OFFICE ACTION MAILED SEPTEMBER 16, 2003**

In response to the Office Action mailed September 16, 2003, please amend the above-identified application as shown. The Commissioner is hereby authorized to charge any additional fees which may be required to Deposit Account 501923.

The Office Action observed that a certified copy of the Japanese priority document had not been filed. However, none is needed; this application is the national stage of a PCT International application and the priority claim was successfully made in the international application, as evidenced by the attached form PCT/IB/304 for application number PCT/JP99/02240. See MPEP Section 201.13(b).

The Office Action rejected claims 1, 2, 4, 7, 8, and 10, asserting that the claims are unpatentable under 35 U.S.C 103(a) in light of U.S. Patent 4,816,078 to Schiweck in combination with all of the following viewed collectively: U.S. Patent 4,831,127 to Weibel (Weibel-1), U.S. 5,008,254 to Weibel (Weibel-2), Saha et. *Applied Microbiology and Biotechnology*, (1996) Vol. 45, pages 301-396 (Saha et al.), and Gatzl et al. *Helv. Chim. Acta*. (1938), 21, 195-205 (Gatzl).

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The references other than Saha et al. (i.e. Schiweck et al., Weibel-1, Weibel-2 and Gatzi et al.) were cited in the last Office Action also. In this regard, the Examiner has stated in Item 2 of the present Office Action that he has been persuaded by Applicant's arguments filed on July 7, 2003, and that he has withdrawn the rejection based on the references cited in the last Office Action. Thus, we believe that there is no more need to argue on Schiweck et al., Weibel-1, Weibel-2 and Gatzi et al.

The Office Action says that Saha page 301, column 2 teaches that L-arabinose is obtainable from corn fiber hydrolyzate. A closer look at that passage indicates that Saha is not discussing L-arabinose production, but its consumption to make L-arabitol. Thus, the Office Action appears to be in error in relying on that passage.

Applicant points out that Saha et al. discloses in the third paragraph, right column of page 300 a preparation of acid hydrolyzate of corn fiber.

As described in the sections "Problems to be Solved by the Invention" and "Means for Solving the Problems" of the present specification, the present invention aims to obtain L-arabinose especially in high purity, good efficiency and high yield from vegetable fiber containing L-arabinose as a part of the constituting saccharides.

In order to achieve the above aim, the inventors have carried out an intensive study on an acidic hydrolysis method for liberation and production of L-arabinose in a specific manner in high yield and purity from vegetable fiber containing L-arabinose as a part of the constituting saccharides and they have found the above aim can be achieved by specifying conditions for the acidic hydrolysis and stage of completion of the acidic hydrolysis as are defined in claim 1.

That is, the process of the present invention requires that the acidic hydrolysis is carried out under such conditions that

- 1) the concentration of acid is within the range of 0.01N to 0.5N,
- 2) the temperature is in the range of 80°C to 150°C, and
- 3) the total amount of the saccharides decomposed and eluted during the acidic hydrolysis is 30% or more on the basis of the dry substance to be hydrolyzed and the proportion of L-arabinose in the total amount of the acid-hydrolyzed monosaccharides is 50% or more, and

L-arabinose contained in the vegetable fiber is selectively produced.

In contrast, Saha et al. does not disclose obtaining L-arabinose specifically, in high purity, good efficiency and high yield. According to the above part of Saha et al., the resulting supernatant solution contains 13 g xylose and 10 g L-arabinose per liter, which means that xylose is produced more than L-arabinose. Saha et al. does not disclose the temperature of the acidic hydrolysis, but considering the fact that the acid hydrolysis of Saha et al. does not produce L-arabinose selectively, the temperature condition in the acid hydrolysis of Saha et al. is believed to be out of the range defined in the present claim 1.

Further, there is no description in Saha et al. that selective production of L-arabinose is preferable and that the specification of conditions for the acidic hydrolysis and stage of completion of the acidic hydrolysis is important for selective production of L-arabinose.

Taking these facts into consideration, it is clear that Saha et al. does not teach or suggest the present invention all, even if the same is combined with other references.

The Applicant submits that by this amendment he has placed the case in condition for immediate allowance and such action is respectfully requested. However, if any issue remains unresolved, Applicant's attorney would welcome the opportunity for a telephone interview to expedite allowance and issue.

Respectfully submitted,



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Date: December 11, 2003

File No.: 4629-007

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